International Journal of Public Health Science (IJPHS)
Vol. 15, No. 2, June 2026, pp. 337~345
ISSN: 2252-8806, DOI: 10.11591/ijphs.v15i2.26994

Impact of an empathy-based mental health first aid intervention using the SUFA model on anxiety and depression among adolescents: a quasi-experimental study

Sulastri, Siti Fatonah, Yuniastini, Giri Udani, Allan Harris
Department of Nursing, Poltekkes Kemenkes Tanjungkarang, Bandar Lampung, Indonesia

Article Info

Article history:

Received Jan 20, 2026
Revised Apr 26, 2026
Accepted May 22, 2026

Keywords:

Anxiety
Depression
Mental health first aid
Peer support
Sufa model

ABSTRACT

This study evaluated the effectiveness of an empathy-based mental health first aid (MHFA) intervention through structured SUFA mentoring by peer counselors in reducing symptoms of anxiety and depression in adolescents. The design used was a quasi-experimental, one-group pretest–posttest study conducted over two weeks in middle and high schools. A total of 100 students were trained as peer counselors, and each mentored one adolescent (a 1:1 ratio). Symptoms were measured before and after the intervention using the Mini MINDHEAR Youth Scale V.1. Analysis included descriptive statistics (mean pre–post scores and changes in symptom categories of "mild/none" vs. "moderate") and McNemar test ($\alpha = 0.05$) to assess changes in categories. Respondents were predominantly female (67%), in late adolescence (58.18%), and high school students (55%). The mean anxiety score decreased from 4.92 to 3.50 ($\Delta = 1.42$), while depression decreased from 5.05 to 3.21 ($\Delta = 1.84$). The proportion of mild/none anxiety increased from 13 to 56, and moderate decreased from 87 to 44 ($p = 0.003$). A similar pattern occurred for depression: mild/none increased from 13 to 61, while moderate decreased ($p = 0.001$). SUFA-based peer counseling interventions significantly reduce symptoms of anxiety and depression in adolescents. Schools should integrate structured peer counselor training programs into mental health frameworks, establish systematic early detection protocols, and establish clear referral pathways to professional services within school-based support systems. The limitations of this study were no control group and short duration, which must be addressed in subsequent research.

This is an open access article under the CC BY-SA license.

Corresponding Author:

Sulastri
Department of Nursing, Poltekkes Kemenkes Tanjungkarang
Bandar Lampung, Lampung, Indonesia
Email: sulastripolkestanka@gmail.com, sulastripoltekkes@gmail.com

1. INTRODUCTION

Globally, adolescent mental health is recognized as an increasingly pressing issue due to the high burden of mental disorders, limited mental health literacy, and stigmatizing barriers that hinder help-seeking behavior. Limited public knowledge regarding mental health promotion, prevention, and access to services remains a problem, despite the high prevalence of mental disorders. Therefore, community- and school-based interventions that strengthen the capacity of first aiders are relevant [1], [2]. In the context of adolescents, the development of teen mental health first aid (tMHFA) as an evidence-based program demonstrates the global need to expand peer first aid capacity in schools, in line with the recognition of the "youth mental health crisis" and the importance of cultural adaptation for effective implementation [3]. In addition, cross-context

evidence suggests that community support can help bridge the gap in access to professional services, particularly in resource-limited settings [4], so that an empathetic and structured peer mentoring approach becomes increasingly significant in the adolescent mental health support ecosystem [5].

At the national level (Indonesia), the need for interventions in school settings is growing as the capacity for early detection and early management of mental-emotional problems in students is strengthened through teacher and peer counselor training. Capacity-building programs in schools have reportedly improved the understanding/knowledge of guidance and counselor teachers and peer counselors, including the ability to conduct screening assessments and provide psychological first aid before referral to adolescent health services at primary health facilities [6]. On the other hand, health education delivered by peer counselors through small group discussions is seen as facilitating communication because it uses language that is more understandable to adolescents and reduces the barrier of embarrassment in expressing thoughts and feelings. This approach has also been reported to be effective in increasing health knowledge and behavior [7].

Despite the growing body of evidence supporting mental health first aid (MHFA) as an effective strategy for improving mental health literacy, reducing stigma, and enhancing confidence in helping individuals with mental health symptoms [8], [9], significant gaps remain in understanding its application within adolescent populations, particularly when combined with empathy-based peer support mechanisms. While existing literature demonstrates that peer counseling facilitates communication among adolescents by using relatable language and reducing barriers such as embarrassment, and that MHFA training improves knowledge and helping intentions across various communities [10], [11],

This gap is particularly critical given the recognition of the global "youth mental health crisis" and the importance of culturally adapted, school-based interventions. Therefore, this study addresses the following research questions: i) What is the effectiveness of an empathy-based MHFA intervention using the SUFA model in reducing anxiety levels among adolescents? ii) What is the effectiveness of this intervention in reducing depression levels among adolescents?

2. METHOD

2.1. Design

This study used a quasi-experimental one-group pretest–posttest design to evaluate the effectiveness of an empathy-based MHFA intervention implemented through structured SUFA mentoring by peer counselors in reducing anxiety and depression levels in adolescents. In this design, measurements were taken before the intervention (pre-test) and after the intervention (post-test) in the same group.

2.2. Location and time

This research was conducted in a school setting, covering Junior High School and Senior High School levels, with the intervention applied to the intervention group for 2 weeks. The data collection time series was arranged sequentially in four main phases. First, the peer counselor training phase was conducted to ensure the readiness of the intervention implementers and the uniformity of mentoring procedures. Second, the screening phase was carried out as an initial measurement (baseline/pre-test) to obtain an overview of the participants' conditions before the program was administered. Third, the SUFA mentoring phase lasted for 2 weeks according to the planned intervention duration, with an emphasis on the consistent implementation of mentoring activities in the school environment. Fourth, the evaluation phase was carried out through a final measurement (post-test) to assess changes and outcomes after the intervention and to allow for direct comparison between conditions before and after the program.

2.3. Participants and sample characteristics

The study involved 100 students who acted as peer counselors. Each peer counselor conducted mental health screenings on adolescents and provided one-on-one support (one counselor assisting one adolescent) using MHFA with the SUFA framework. In the operational framework of this study, there are two entities: i) Peer counselors (n = 100) as intervention implementers, who have received training. ii) Adolescents who are accompanied as intervention recipients (logically, a 1:1 design, the number of intervention recipients is equal to the number of counsellors. Pre-post analysis of anxiety and depression symptoms refers to the screening/ assessment results of the accompanying adolescents.

Important methodological note: The outcome data (mean scores and changes in mild/moderate categories) indicate that the unit of analysis was the adolescent recipients of the intervention. Because the intervention was conducted 1:1 by 100 peer counselors, this study implicitly involved up to 100 recipients (one per counselor), unless there was dropout. Dropout information is not included, so the method statement is based on available data.

2.4. Drop-out respondent criteria

Participants were classified as dropouts and excluded from the final analysis if they met any of the following criteria: i) incomplete intervention exposure, ii) did not participate in the post-test assessment, iii) the emergence of a crisis during the intervention period necessitating participation guarantees for the safety of the participants; iv) voluntary self-withdrawal at the participant's own request, and v) lost to follow-up.

2.5. Inclusion and exclusion criteria

The inclusion criteria for intervention recipients included adolescents with JHS/SHS level status who participated in mental health screening, showed indications of anxiety and/or depression symptoms based on initial screening using the Mini MINDHEAR Youth Scale V.1 in the category of at least "moderate" (or according to the operational cut-off set by the school), and expressed willingness to participate in SUFA mentoring for two weeks. The exclusion criteria included adolescents who were in crisis or high-risk conditions requiring immediate referral, for example, indications of severe suicidal ideation or psychotic symptoms, because, according to the principles of MHFA practice, such cases are not handled as pure peer mentoring but are diverted through the clinical referral system. In addition, participants who did not complete the two-week mentoring series or did not complete the post-test were excluded from the intervention evaluation analysis because they did not meet the completeness of intervention exposure and outcome measurement.

2.6. Intervention: empathy-based MHFA with SUFA model

The intervention tested in this study was empathy-based MHFA, operationalized through the SUFA Model as a structured sequence of mentoring for early non-clinical support for adolescents, encompassing early detection, strengthening social support, and professional referrals when needed. In the Aware stage, peer counselors identify early signs of psychological problems (eg, withdrawal, emotional changes, or impaired social/academic functioning) as a form of literacy and initial screening. The Address stage is carried out by opening a safe conversation through active listening and non-judgmental responses to reduce stigma barriers. Next, in Facilitation, counselors provide emotional and practical support such as validation of feelings, coping planning, and assistance in dealing with social/digital stressors (including friendship conflicts or cyberbullying). In the direct stage, counselors assess the limits of peer support authority and direct access to appropriate assistance (guidance teachers, health services, parents/guardians, or professionals), especially when symptoms persist or worsen. The intervention is implemented by students who have been trained, with a duration of two weeks. The frequency of sessions was not available, so the dosage was transparently reported as “two weeks of structured mentoring.”

2.7. Research instruments

The primary instrument of this study was the Mini MINDHEAR Youth Scale V.1, which was used to assess and screen for symptoms of anxiety and depression in adolescents. Measurements were conducted at two times: pre-test (baseline before SUFA support) and post-test (after 2 weeks of support), allowing for comparison of changes in scores before and after the intervention. Anxiety and depression variables were reported in two forms: i) mean pre-post scores presented and ii) severity category groupings, namely mild/none versus moderate for each construct. In reporting, there is an important note regarding the consistency of naming: the label “Anxiety Pre-Post” appearing in the depression section appears to be a mislabeling, as based on the narrative of the results, that section substantively represents depression.

2.8. Data collection procedures

The data collection procedure was carried out through two main stages: preparation and implementation. In the preparation stage, the researcher first coordinated with the school to obtain permission to carry out the activity, then recruited peer counselors from students (n = 100). Next, the peer counselors participated in training covering the principles of MHFA, empathetic communication techniques, screening skills using the Mini MINDHEAR Youth Scale V.1, mentoring ethics (including confidentiality, role boundaries, and referral mechanisms), and the implementation of the SUFA process. In the implementation stage, peer counselors conducted an initial screening (pre-test) on the adolescent partners using the Mini MINDHEAR Youth Scale V.1 to obtain baseline anxiety and depression scores. After that, structured mentoring for two weeks was carried out based on the SUFA stages (recognise–speak–facilitate–direct). After two weeks, a final evaluation (post-test) was conducted through re-measurement using the same instrument to assess changes in scores.

2.9. Research variables and operational definitions

The independent variable in this study is the intervention MHFA empathy-based, accompanied by structured SUFA mentoring by peer counselors for 2 weeks, which is operationally defined as the provision of an early mental health assistance program that emphasizes empathic skills (e.g., active listening, emotional validation, non-judgmental supportive communication) and is implemented through a series of scheduled

mentoring sessions by peer counselors with a SUFA flow (as a standardized mentoring protocol to ensure uniformity of steps, frequency, and goals of each session) within a two-week intervention period. Exposure to the intervention is considered "implemented" if the participant receives all core components according to the established schedule. Dependent variables include i) Anxiety scores (anxiety) based on the Mini MINDHEAR Youth Scale V.1 which is operationalized as a numerical value (average) of the measurement results before the intervention (pre) and after the intervention (post), so that changes in pre-post scores represent changes in anxiety levels; ii) Depression scores (depression) based on the Mini MINDHEAR Youth Scale V.1 which is operationalized similarly as pre and post numeric (mean) values, with the pre–post difference describing changes in depression levels, and iii) Categories of anxiety and depression symptom levels which are operationalized as pre–post categorical data with the grouping of "mild/none" versus "moderate" based on the Mini MINDHEAR Youth Scale V.1 cut-off point.

2.10. Data analysis

Data analysis was conducted through two main stages: descriptive and inferential analysis, with the statistical significance threshold set at $\alpha = 0.05$. In the descriptive analysis, respondent characteristics were presented in the form of frequency distributions and percentages for key demographic variables, including gender, age group, and education level. A description of changes in anxiety and depression symptoms was reported using the mean pre-test and post-test scores and the magnitude of the difference in mean reduction (Δ mean) as an indicator of shifts in symptom levels after the intervention. To complement the category-based clinical interpretation, the distribution of symptom levels before and after the intervention was also presented by grouping respondents into two categories, namely "mild/none" versus "moderate". In the inferential analysis, changes in symptom categories in repeated pre-post measurements (two categories) were analyzed using the paired proportion difference test for categorical data, namely the McNemar test.

2.11. Limitation

This study has methodological limitations. The study used a quasi-experimental one-group pretest-posttest design without a control group. In addition, the intervention duration of only two weeks was relatively short compared to similar interventions.

3. RESULTS

Figure 1 illustrates that the SUFA model can be positioned as a peer-based intervention framework for early support of adolescent mental health, emphasizing early detection, supportive communication, emotional-practical support, and professional referral when needed. Its relevance is supported by evidence that anxiety/depression are related to adolescent social dynamics (e.g., friendship quality), psychosocial factors such as loneliness, and exposure to digital stressors (e.g., cyberbullying), which impact mental health. Recognition requires sensitivity to changes in social-emotional functioning (withdrawal, worsening relationships) and can be strengthened through psychoeducation/mental health literacy to improve the ability to recognize signs. It focuses on opening safe conversations, active listening, and non-judgmental responses, in line with findings that peer emotional support is correlated with psychological well-being. Facilitation operationalizing social support through empathy, validation, and practical assistance (including strategies for dealing with cyberbullying). Directly affirming the boundaries of peer support by connecting individuals to counselors/professional services and school resources in a timely manner.

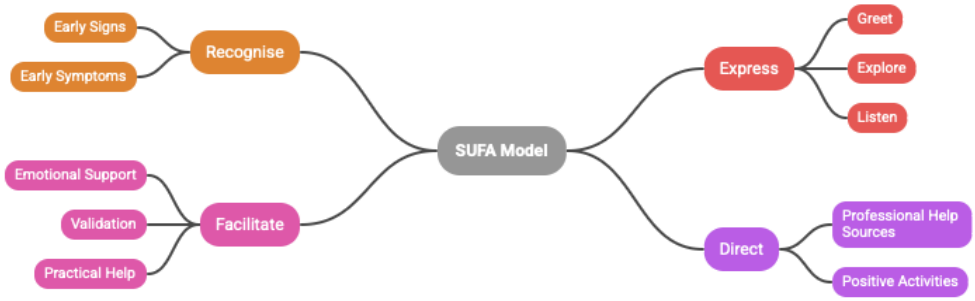

Figure 1. Anxiety/depression intervention mechanism (SUFA model)

Based on Table 1, the distribution of respondent characteristics shows that the majority of participants were female (67%) compared to male (33%). In terms of age, respondents were more likely to be

in late adolescence (64%) than early adolescence (46%), indicating that the sample was dominated by individuals in a more advanced developmental phase. In terms of educational level, the proportion of respondents at the senior high school level (55%) was greater than that of junior high school (45%).

Table 1. Respondent characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Woman	67	67.00
	Man	33	33.00
Age group	Early Adolescence	46	41.82
	Late Teenagers	64	58.18
Education	Junior High School	45	45.00
	Senior High School	55	55.00

Based on Table 2, the analysis results show a significant decrease in anxiety and depression symptoms after the intervention. The average anxiety score decreased from 4.92 (pre-test) to 3.5 (post-test) with a difference of 1.42 points, resulting in a Cohen's d estimate of ~0.71, which is included in the medium-large effect category. Meanwhile, depression symptoms showed a more substantial decrease, from a score of 5.05 to 3.21, with a difference of 1.84 points and a Cohen's d estimate of ~0.92, which is categorized as a large effect. Referring to Cohen's (1988) interpretation guidelines, a value of $d = 0.2$ is considered a small effect, $d = 0.5$ a medium effect, and $d = 0.8$ a large effect.

Table 2. Analysis of differences in mean symptoms pre and post-intervention

Variable	Pre-test	Post test	Average decline (Δ mean)	Estimated Cohen's d	Interpretation
Anxiety	4.92	3.5	1.42	~0.71	Medium-large
Depression	5.05	3.21	1.84	~0.92	Large

Table 3 shows significant changes in levels of anxiety and depression symptoms in adolescents before and after the structured, empathy-based MHFA intervention by peer counselors. For anxiety symptoms, there was a substantial increase in the number of respondents with mild/no symptoms from 13 to 56, while moderate symptoms decreased from 87 to 44 ($p = 0.003$). A similar pattern was seen for depression symptoms, where respondents with mild/no symptoms increased from 13 to 61, and moderate symptoms decreased from 44 to 39 ($p = 0.001$). A $p < 0.05$ value for both variables indicates that the changes are statistically significant, thus concluding that the MHFA intervention conducted by peer counselors is effective in reducing levels of anxiety and depression in adolescents.

Table 3. Changes in adolescents' levels of anxiety and depression symptoms before and after the intervention, MHFA based on empathy and structured support by peer counselors

Symptom level	Variables	
	Pre-post anxiety	Pre-post depression
Mild/none	13-56 Respondents	13-61 Respondents
Moderate	87-44 Respondents	44-39 Respondents
p-value	0.003	0.001
Odds ratio	8.52	5.29

4. DISCUSSION

Stage express it, emphasize greetings, warm conversation starters, sensitive exploration of circumstances, and active listening to build a sense of relational safety. The literature suggests that the quality of friendships and peer support is an important factor for adolescent mental health. Judgmental or distant responses can weaken attachments and limit access to early help [12]. About one in seven teenagers experiences mental disorders such as depression and anxiety [13], so supportive communication practices are relevant as an entry point for initial support before symptoms worsen [14].

The facilitation stage can be understood as an operational form of social support that integrates i) emotional support (empathy, encouragement, and a sense of security), ii) validation (recognition of emotions and experiences), and iii) practical assistance, particularly informational support (access to knowledge, guidance) and, when relevant, instrumental support [15]. In models of peer support for adolescents, emotional, informational, and validation components emerge as core elements that build psychological safety and empowerment to share experiences without fear of judgment [15].

Stage "Direct" emphasizes that peer support is limited. Therefore, individuals need to be structuredly connected to competent sources of support (e.g., school counselors and mental health services) when symptoms persist or are severe to ensure appropriate treatment [16]. The need for referral in the school context is supported by school-based screening findings that indicate a significant proportion of adolescents with stress, anxiety, and depressive symptoms, requiring access to mental health information and clear referral pathways [16].

In addition to referrals, the "Direct" stage includes strengthening emotional regulation through positive school-based activities and psychoeducation. Various psychoeducational interventions and skills-based therapies implemented in schools have been proven to reduce anxiety in students [17]-[19]. Use of educational media based on video also shows potential to influence anxiety and understanding, making it worthy of integration as a component of initial support before or alongside referral [20]. In distress influenced by strong social determinants, strengthening social support through school programs still needs to be combined with professional referrals to ensure continuity of services [21], [22].

Table 1 shows that the distribution of respondents is dominated by females (67%) compared to males (33%). In terms of age, more respondents were in late adolescence (58.18%) than early adolescence (41.82%). Table 2 shows a decrease in mean symptoms from pre-test to post-test for both anxiety (4.92 to 3.50; a decrease of 1.42) and depression (5.05 to 3.21; a decrease of 1.84). Conceptually, the pattern of "decrease in post-intervention scores compared to pre-intervention" is a finding often used as an indicator of the effectiveness of psychosocial/psychotherapy programs in various population contexts. For example, pretest–posttest studies evaluating an intervention also report a decrease in post-intervention anxiety scores compared to pre-intervention [23]. A randomized controlled trial study of a mindfulness/relaxation-based program also found lower post-test anxiety scores, both compared to baseline and a comparison group [24], and childbirth education programs also showed a decrease in anxiety from pretest to posttest after the intervention [25].

The reduction in mean depression in Table 2 is also consistent with evidence that certain psychological interventions can reduce depressive symptoms. Meta-analyses of self-compassion interventions report effects on reducing depressive and anxiety symptoms [26]. Mindfulness interventions (including digital forms) in systematic reviews/meta-analyses have also been reported to be effective in alleviating depression [24]. In addition, gratitude-based interventions were reported to have small but statistically significant effects on depressive symptoms as well as anxiety at post-test and follow-up [27].

Table 3 shows a shift in the distribution of symptom levels toward milder categories after the intervention. For anxiety, the "mild/none" category increased (13 to 56 respondents), and the "moderate" category decreased (87 to 44), with $p = 0.003$. For depression (shown as "Anxiety Pre-Post" in the table), the "mild/none" category increased (13 to 61), and the "moderate" category decreased (44 to 39), with $p = 0.001$. Methodologically, this pattern of "shifting categories toward milder levels" aligns with the narrative that interventions can not only reduce mean scores but also alter risk profiles at the individual/group level. The finding of improvement in anxiety symptoms from pre- to post-anxiety is also consistent with studies of exposure therapy in children and adolescents that report decreased anxiety symptoms after therapy [28], as well as with mindfulness/relaxation interventions that showed lower post-intervention anxiety scores [24].

The statistical significance (p-value) in Table 3 strengthens the interpretation that the changes in the distribution of pre-post categories were not simply random fluctuations in this sample. Although the available references do not address specific category testing in the context of adolescent MHFA, RCT evidence on mindfulness/relaxation and childbirth education programs demonstrates statistically significant differences in anxiety from pre to post [24]. In addition, meta-analyses of self-compassion and gratitude interventions also indicate that changes in symptoms (depression and/or anxiety) can appear consistently at post-test across studies, although the magnitude of the effect varies [26], [27]. Thus, the statistical significance in Table 3 is consistent with the intervention literature showing statistically detectable changes in symptoms, while also underscoring that variability in effects is common in universal/prevention interventions [29].

Table 3 is also relevant to read within the framework of "peer-led" mentoring. In a survey during the pandemic, an example of a peer-led mental health prevention program for medical students was reported in the context of a burnout and stress prevention seminar, illustrating that peer-based approaches are used in mental health prevention practice and are associated with psychological outcomes in participants [29]. Furthermore, the development of training that "draws inspiration from MHFA" with attention to anxiety and depression was also discussed in a study of cross-service program acceptability, which confirmed the relevance of MHFA as a training framework for the early detection/treatment of anxiety and depression. Therefore, the shift in symptom categories in Table 3 can be placed within the evidence landscape that programs that are structured, oriented toward early support, and may include training/mentoring components (including peer support) have the potential to result in improvements in anxiety and depression indicators [30].

5. CONCLUSION

This study demonstrates that the SUFA Model, implemented through peer counselor-delivered MHFA intervention, significantly reduces anxiety and depression symptoms among adolescents. The findings reveal medium-large effects for anxiety (Cohen's $d \approx 0.71$) and large effects for depression (Cohen's $d \approx 0.92$), with statistically significant symptom reductions ($p < 0.05$). These results confirm that structured, empathy-based peer interventions effectively address adolescent mental health concerns through early detection, supportive communication, and appropriate professional referral pathways. The magnitude of these effect sizes aligns with established benchmarks in psychological intervention research, suggesting clinical meaningfulness beyond statistical significance.

For scaling and policy integration, several strategic approaches are recommended. Educational institutions should develop standardized, replicable training curricula for peer counselors, complemented by digital platforms to extend intervention reach, particularly addressing cyberbullying-related stressors and train-the-trainer programs ensuring sustainable implementation capacity. At the policy level, governments should incorporate peer-based mental health support into national school health policies, allocate dedicated funding within educational budgets, establish clear referral protocols linking peer systems with professional services, mandate foundational mental health literacy education, and develop monitoring frameworks to evaluate intervention fidelity and outcomes at scale. These integrated approaches can facilitate systematic adoption while maintaining intervention quality and effectiveness.

ACKNOWLEDGMENTS

The authors would like to express their gratitude to the schools (junior high schools/senior high schools) for providing permission, supporting facilities, and coordinating the research implementation throughout the training, screening, SUFA mentoring, and evaluation phases. They also appreciate the peer counselors (n = 100) and the adolescent participants for their participation, discipline, and commitment in following the pretest–posttest procedures over the two weeks. Finally, they would like to thank all parties who assisted in the data collection process, maintained research ethics (confidentiality and references), and ensured the smooth implementation of the MHFA-based intervention.

FUNDING INFORMATION

This research was funded by the Ministry of Health, through the DIPA funds of the Tanjung Karang Ministry of Health Polytechnic with the number HK.112.3.02/DIPA/2025.

AUTHOR CONTRIBUTIONS STATEMENT

This journal uses the Contributor Roles Taxonomy (CRediT) to recognize individual author contributions, reduce authorship disputes, and facilitate collaboration.

Name of Author	C	M	So	Va	Fo	I	R	D	O	E	Vi	Su	P	Fu
Sulastri	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Siti Fatonah	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yuniastini	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Giri Udani	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Allan Harris	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓

C : **C**onceptualization
M : **M**ethodology
So : **So**ftware
Va : **Va**lidation
Fo : **Fo**rmal analysis
I : **I**nvestigation
R : **R**esources
D : **D**ata Curation
O : Writing - **O**riginal Draft
E : Writing - Review & **E**diting
Vi : **Vi**sualization
Su : **Su**pervision
P : **P**roject administration
Fu : **Fu**nding acquisition

CONFLICT OF INTEREST STATEMENT

Authors state no conflict of interest.

ETHICAL APPROVAL

This research has received ethical approval from the Mataram Ministry of Health Polytechnic with the number: 446/KEPK-TJK/V/2025.

DATA AVAILABILITY

The data that support the findings of this study are available from the corresponding author, [S], upon reasonable request.

REFERENCES

[1] A. Schick, C. Henn, T. S. Send, S. Maltese, M. Deuschle, and U. Reininghaus, "Initial effects of mental health first aid training on mental health literacy, social distance, stigma, mental health, and quality of life in the German adult population – Findings from a pilot study," *European Psychiatry*, vol. 68, no. 1, p. e164, Oct. 2025, doi: 10.1192/j.eurpsy.2025.10114.

[2] S. Russell, V. Kelly, R. Polman, and M. Warren-James, "The effectiveness of online mental health first aid training in community rugby: a mixed-methods approach," *International Journal of Environmental Research and Public Health*, vol. 20, no. 7, p. 5391, Apr. 2023, doi: 10.3390/ijerph20075391.

[3] L. L. Rosenbaum *et al.*, "Cultural adaptation of the teen mental health first aid (tMHFA) program from Australia to the USA," *School Mental Health*, vol. 15, no. 2, pp. 637–655, Jun. 2023, doi: 10.1007/s12310-023-09576-z.

[4] K. Hays and J. Costello, "Reflections on the cultural adaptations and implementation challenges of mental health first aid in Uganda: a case study.," *Psychological Services*, vol. 19, no. Suppl 2, pp. 95–101, 2022, doi: 10.1037/ser0000549.

[5] Y. Ma, C. Ramos, H. Wen, and J. R. Cummings, "Racial and ethnic differences in mental health service use among adolescents," *JAMA Network Open*, vol. 8, no. 6, p. e2516612, Jun. 2025, doi: 10.1001/jamanetworkopen.2025.16612.

[6] R. K. Kusumaratna, P. M. Said, M. Rifky, D. A. D. Hasan, and W. Suci, "Penguatan kapasitas guru dan konselor sebaya: deteksi dan penatalaksanaan dini kesehatan mental-emosional siswa," *Empowerment*, vol. 8, no. 01, 2025, doi: 10.25134/empowerment.v8i01.11184.

[7] P. D. Rachmawati *et al.*, "Health education by peer counselors increases adolescent knowledge about healthy lifestyles," *Jurnal Pengabdian Masyarakat Dalam Kesehatan*, vol. 6, no. 1, pp. 8–14, Apr. 2023, doi: 10.20473/jpmk.v6i1.49590.

[8] J. L. Liu, C. Wang, K. A. Do, and D. Bali, "Asian American adolescents' mental health literacy and beliefs about helpful strategies to address mental health challenges at school," *Psychology in the Schools*, vol. 59, no. 10, pp. 2062–2084, Oct. 2022, doi: 10.1002/pits.22655.

[9] H. Bennett, B. Allitt, and F. Hanna, "A perspective on mental health literacy and mental health issues among Australian youth: Cultural, social, and environmental evidence!," *Frontiers in Public Health*, vol. 11, Jan. 2023, doi: 10.3389/fpubh.2023.1065784.

[10] K. J. Chalmers *et al.*, "Redevelopment of mental health first aid guidelines for supporting someone experiencing a panic attack: a Delphi study," *BMC Psychology*, vol. 10, no. 1, p. 136, Dec. 2022, doi: 10.1186/s40359-022-00843-3.

[11] F. Chou, K. Pradhan, and C. Huang, "The core connectors initiative: development of a youth mental health program," *International Journal of Child, Youth and Family Studies*, vol. 13, no. 1, pp. 30–55, Apr. 2022, doi: 10.18357/ijcyfs131202220657.

[12] Mudzakkir and P. U. Rizqi, "Friendship, culture, and mental health in adolescence: a review of current evidence," *Psychosocia : Journal of Applied Psychology and Social Psychology*, vol. 2, no. 3, pp. 148–160, Jul. 2024, doi: 10.61978/psychosocia.v2i3.771.

[13] E. Chang, R. Bayliyeva, and Y. Zhu, "Evaluating the effectiveness of facilitator-led mental health education program interventions to improve adolescent mental wellbeing." Feb. 18, 2025, doi: 10.1101/2025.02.16.25322348.

[14] Y. Liao, M. A. Ameyaw, C. Liang, and W. Li, "Research on the effect of evidence-based intervention on improving students' mental health literacy led by ordinary teachers: a meta-analysis," *International Journal of Environmental Research and Public Health*, vol. 20, no. 2, p. 949, Jan. 2023, doi: 10.3390/ijerph20020949.

[15] S. Sannigrahi *et al.*, "'I can be a source of motivation': Perspectives from stakeholders of the I'mPossible fellowship, a peer-led differentiated service delivery model for adolescents with perinatally acquired HIV in India." Mar. 13, 2025, doi: 10.1101/2025.03.11.25323808.

[16] A. Dwiana, A. H. Santoso, and F. C. Gunaidi, "Deteksi dini burnout akademik dan gangguan psikologis remaja menggunakan DASS-Y di SMA Wilayah Citra Raya," *SEWAGATI: Jurnal Pengabdian Masyarakat Indonesia*, vol. 4, no. 1, pp. 83–90, Jun. 2025, doi: 10.56910/sewagati.v4i1.2565.

[17] A. W. G. van Loon *et al.*, "The effectiveness of school-based skills-training programs reducing performance or social anxiety: two randomized controlled trials," *Child & Youth Care Forum*, vol. 52, no. 6, pp. 1323–1347, 2023, doi: 10.1007/s10566-023-09736-x.

[18] B. Uysal *et al.*, "Reducing test anxiety during the COVID-19 pandemic: a comparison of the effectiveness of cognitive behavioral therapy and acceptance and commitment therapy," *Psychological Reports*, vol. 127, no. 1, pp. 159–177, Feb. 2024, doi: 10.1177/00332941231174394.

[19] F. Z. Ü. Kaynakçı, G. Aydın, and S. B. Ö. Üçok, "ACT-based psychoeducation program for reducing test anxiety: a mixed method case study of economically disadvantaged students," *Psychology in the Schools*, vol. 62, no. 9, pp. 3727–3735, Sep. 2025, doi: 10.1002/pits.23583.

[20] E. L. Acors, B. Renner, S. Worrill, H. Bhagtani, S. N. Jaimes Ocazionez, and E. P. Magalhaes, "Feed, read, and grow: an observational study on the impact of educational videos about pediatric anxiety," *Cureus*, Oct. 2025, doi: 10.7759/cureus.94724.

[21] G. Albright *et al.*, "High school educator training by simulation to address emotional and behavioral concerns in school settings: a randomized study," *Journal of Technology in Behavioral Science*, vol. 7, no. 3, pp. 277–289, 2022, doi: 10.1007/s41347-022-00243-9.

[22] K. S. Leventhal *et al.*, "Promoting wellbeing and empowerment via Youth First: Exploring psychosocial outcomes of a school-based resilience intervention in Bihar, India," *Frontiers in Psychiatry*, vol. 13, Nov. 2022, doi: 10.3389/fpsyt.2022.1021892.

[23] S. Pawar, "Anxiety among old age people and their relationship with selected socio-demographic variables: a study from western Maharashtra," *Journal of Pharmacy and Bioallied Sciences*, vol. 17, no. Suppl 3, 2025, doi: 10.4103/jpbs.jpbs_918_25.

[24] N. Gökbulut, S. Ö. Cengizhan, E. I. Akça, and E. Ceran, "The effects of a mindfulness-based stress reduction program and deep relaxation exercises on pregnancy-related anxiety levels: A randomized controlled trial," *International Journal of Nursing Practice*, vol. 30, no. 5, Oct. 2024, doi: 10.1111/ijn.13238.

[25] E. K. Suryaningsih, M.-L. Gau, C.-H. Kao, C.-Y. Liu, S.-Y. Kuo, and J.-J. Liaw, "Effect of childbirth education program on maternal anxiety: a randomized controlled trial using Roy's adaptation model," *Journal of Health Technology Assessment in Midwifery*, vol. 6, no. 1, pp. 36–48, May 2023, doi: 10.31101/jhtam.2862.

[26] A. Han and T. H. Kim, "Effects of self-compassion interventions on reducing depressive symptoms, anxiety, and stress: a meta-analysis," *Mindfulness*, vol. 14, no. 7, pp. 1553–1581, Jul. 2023, doi: 10.1007/s12671-023-02148-x.

[27] S. Dalal and S. Singh, "Gratitude in action: effect of gratitude on mental health," *Journal of Health Management*, vol. 27, no. 1, pp. 100–107, Feb. 2025, doi: 10.1177/09720634241304985.

[28] L. M. Köcher, V. Pflug, S. Schneider, and H. Christiansen, "Do metacognitions of children and adolescents with anxiety disorders change after intensified exposure therapy?," *Children*, vol. 9, no. 2, p. 168, Jan. 2022, doi: 10.3390/children9020168.

[29] L. Ehl, C. Scheiner, A. Wasserscheid, G. Hein, M. Gamer, and A. Bürger, "German college students' mental health state and their willingness to use mental health prevention: An online survey during the COVID-19 pandemic," *Heliyon*, vol. 11, no. 3, p. e42290, Feb. 2025, doi: 10.1016/j.heliyon.2025.e42290.
[30] T. Fisher *et al*., "The acceptability of the fire and rescue service working with primary care to improve identification of mental health problems in older adults. a mixed-method qualitative study," *BJGP Open*, vol. 7, no. 4, p. BJGPO.2023.0059, Dec. 2023, doi: 10.3399/BJGPO.2023.0059.

BIOGRAPHIES OF AUTHORS

Sulastri is an esteemed educator within the Nursing Department at Poltekkes Kemenkes Tanjung Karang, located in Bandar Lampung, Province of Lampung, Indonesia. She holds an advanced degree in nursing and possesses extensive experience in both clinical practice and nursing education. Her career is marked by dedication to improving healthcare outcomes and advancing nursing education in Indonesia. She is actively engaged in curriculum development and mentoring future nurses, fostering a holistic understanding of patient care and healthcare systems among her students. She incorporates evidence-based practices and innovative teaching methodologies to enhance learning experiences. In addition, her research interests encompass various aspects of nursing, including public health, maternal and child health, and healthcare management. Throughout her career, she has contributed to numerous workshops and conferences, focusing on professional development and the integration of technology in nursing education. Her commitment to nursing excellence and community health has made her a respected figure within the academic and healthcare communities in Indonesia. She can be contacted at email: sulastripolkestanka@gmail.com or sulastripoltekkes@gmail.com.

Siti Fatonah is a lecturer in the Nursing Department of the Poltekkes Kemenkes Tanjung Karang, Bandar Lampung, Lampung Province, Indonesia. She has a background in nursing and has contributed significantly to the development of nursing education in Indonesia. In carrying out her duties, she actively conducts research and publications in the fields of health and nursing, with a focus on improving the quality of health services. In addition to teaching, she is also involved in various community service activities and training for health workers. With her dedication, Siti Fatonah strives to produce a generation of competent and professional nurses to meet the health care needs of the community. She can be contacted at email: sitifatonahsiti789@gmail.com.

Yuniastini is an accomplished academic affiliated with the Department of Nursing at Poltekkes Kemenkes Tanjung Karang, located in Bandar Lampung, Lampung Province, Indonesia. With a strong commitment to nursing education and practice, she has contributed significantly to the enhancement of nursing standards within her region. Yuniastini's work focuses on various aspects of nursing, including patient care, health promotion, and the integration of evidence-based practices in clinical settings. Her academic role encompasses teaching, mentoring students, and engaging in research aimed at addressing contemporary challenges in nursing. As a dedicated educator, she strives to equip future nurses with the knowledge and skills necessary to excel in their profession. She can be contacted at email: yuniastini365@gmail.com.

Giri Udani is an academic at the Department of Nursing, Ministry of Health Polytechnic (Poltekkes Kemenkes) Tanjungkarang, Bandar Lampung, Lampung Province, Indonesia. In his capacity at the institution, he plays a role in the development and implementation of vocational higher education activities in the field of nursing, as well as supporting the implementation of the Tri Dharma Perguruan Tinggi (education, research, and community service) in accordance with the institution's mandate. His professional involvement focuses on strengthening nursing competencies and improving the quality of health services through an education- and practice-based approach. For academic correspondence and professional communication. She can be contacted at email: giriudani62@gmail.com.

Allan Harris is a nursing academic affiliated with the Department of Nursing, Poltekkes Kemenkes Tanjungkarang, Bandar Lampung, Lampung Province, Indonesia. In his capacity as a lecturer/educator at the institution, he contributes to the development of education and strengthening professional competencies in nursing, including the implementation of evidence-based practice in the context of health care. His professional interests include improving the quality of learning and strengthening nursing services oriented towards patient safety and community needs. For academic correspondence and professional communication. He can be contacted at email: allanstd5@gmail.com.